CLAIMS

What is claimed is:

1. A method for transceiving data in a micro area network that includes a plurality of data transceiving entities, the method comprises:

obtaining, by a first data transceiving entity of the plurality of data transceiving entities, a data unit for transmission, wherein the data unit includes payload data and overhead data, wherein the overhead data identifies at least one target entity of the plurality of data transceiving entities;

formatting, by the first data transceiving entity, the payload data using a first transmission format convention to produce formatted payload data;

formatting, by the first data transceiving entity, the overhead data using a second transmission format convention to produce formatted overhead data;

transmitting, by the first data transceiving entity, the formatted payload data and the formatted overhead data to the at least one target entity;

receiving, by the at least one target entity, the formatted payload data and the formatted overhead data;

deformatting, by the at least one target entity, the formatted payload data using the first transmission format convention to produce retrieved payload data;

deformatting, by the at least one target entity, the formatted overhead data using the second transmission format convention to produce retrieved overhead data; and

reconstructing, by the at least one target entity, the data unit from the retrieved payload data and the retrieved overhead data.

2. The method of claim 1, wherein the obtaining the data unit further comprises at least one of:

receiving the data from a source external to the micro area network;

receiving the data from a source within the micro area network; and

generating the data.

3. The method of claim 1, wherein the formatting the payload data further comprises:

encoding the payload data as at least part of the first transmission format convention to produce encoded payload data.

4. The method of claim 3, wherein the encoding the payload data further comprises at least one of:

multilevel encoding the payload data;

non return to zero (NRZ) encoding the payload data;

Manchester encoding the payload data;

block encoding the payload data; and

nB/mB encoding the payload data, where n < m.

5. The method of claim 3, wherein the formatting the payload data further comprises:

modulating the encoded payload data as at least part of the first transmission format convention to produce the formatted payload data.

6. The method of claim 1, wherein the formatting the payload data further comprises:

obtaining data transmission parameters that include at least one of: serial data transmission, parallel data transmission, single path transmission, multi-path transmission, and data rate.

7. The method of claim 1, wherein the formatting the payload data further comprises:

modulating the payload data as at least part of the first transmission format convention to produce encoded payload data.

8. The method of claim 7, wherein the modulating the payload data further comprises at least one of:

pulse position modulating the payload data;
time division multiplexing the payload data;
frequency division multiplexing the payload data;
pulse amplitude modulating the payload data;
amplitude shift keying the payload data;
frequency shift keying the payload data;
phase shift keying the payload data;
quadrature phase shift keying the payload data; and
carrier sense multiple accessing the payload data.

9. The method of claim 1, wherein the formatting the overhead data further comprises:

encoding the overhead data as at least part of the second transmission format convention to produce encoded overhead data.

10. The method of claim 9, wherein the encoding the overhead data further comprises at least one of:

multilevel encoding the overhead data;
non return to zero (NRZ) encoding the overhead data;
Manchester encoding the overhead data;
block encoding the overhead data; and
nB/mB encoding the overhead data, where n < m.

11. The method of claim 9, wherein the formatting the overhead data further comprises:

modulating the encoded overhead data as at least part of the second transmission format convention to produce the formatted overhead data.

12. The method of claim 1, wherein the formatting the overhead data further comprises:

modulating the overhead data as at least part of the second transmission format convention to produce encoded overhead data.

13. The method of claim 12, wherein the modulating the overhead data further comprises at least one of:

pulse position modulating the overhead data;
time division multiplexing the overhead data;
frequency division multiplexing the overhead data;
pulse amplitude modulating the overhead data;
amplitude shift keying the overhead data;
frequency shift keying the overhead data;
phase shift keying the overhead data;
quadrature phase shift keying the overhead data; and
carrier sense multiple accessing the overhead data.

14. The method of claim 1, wherein the formatting the overhead data further comprises:

interpreting the overhead data to identify the at least one target entity;

determining whether the at least one target entity is a termination destination of the payload data or an intermediate destination of the payload data; and

when the at least one target entity is the termination destination, modifying at least one of network layer overhead information, link layer overhead information, and physical

layer overhead information of the overhead data into micro area network overhead data, wherein the micro area network overhead data identifies the target entity and data use information.

15. The method of claim 14 further comprises:

when the at least one target entity is the intermediate destination, providing at least a portion of the at least one of the network layer overhead information, the link layer overhead information, and the physical layer overhead information of the overhead data to the at least one target entity.

16. The method of claim 14 further comprises:

determining type of the at least one target entity; and

generating the micro area network overhead data based on the type of at least one target entity.

17. The method of claim 1, wherein the transmitting the formatted overhead data and the formatted payload data further comprises:

transmitting the formatted overhead data on a first communication path to the at least one target entity; and

transmitting the formatted payload data on a second communication path to the at least one target entity.

18. The method of claim 17 further comprises at least one of:

synchronously transmitting the formatted overhead data and the formatted payload data to the at least one target entity such that the formatted overhead data is associated with the formatted payload data; and

asynchronously transmitting the formatted overhead data and the formatted payload data to the at least one target entity, wherein the formatted overhead data and the formatted

payload data include an identifier to associate the formatted overhead data with the formatted payload data.

19. The method of claim 1, wherein the transmitting the formatted payload data and the formatted overhead data further comprises:

transmitting the formatted payload data and the formatted overhead data in a frame.

20. The method of claim 1, wherein the transmitting the formatted payload data and the formatted overhead data further comprises:

obtaining access to at least one communication path to the at least one target entity via at least one of:

utilizing carrier sense multiple access protocol;

transmitting the formatted overhead data and the formatted payload data in an assigned time frame;

transmitting the formatted overhead data and the formatted payload data at an assigned frequency; and

receiving access to the at least one communication path from a controller.

21. The method of claim 1, wherein the deformatting the formatted payload data further comprises:

decoding the formatted payload data as at least part of the first transmission format convention to produce decoded payload data.

22. The method of claim 21, wherein the decoding the formatted payload data further comprises at least one of:

multilevel decoding the formatted payload data;

non return to zero (NRZ) decoding the formatted payload data;

Manchester decoding the formatted payload data;
block decoding the formatted payload data; and
nB/mB decoding the formatted payload data, where n < m.

23. The method of claim 21, wherein the deformatting the formatted payload data further comprises:
demodulating the decoded payload data as at least part of the first transmission format convention to produce the retrieved payload data.

24. The method of claim 1, wherein the deformatting the formatted payload data further comprises:
obtaining data transmission parameters that include at least one of: serial data transmission, parallel data transmission, signal path transmission, multi-path transmission, and data rate.

25. The method of claim 1, wherein the deformatting the formatted payload data further comprises:
demodulating the formatted payload data as at least part of the first transmission format convention to produce decoded payload data.

26. The method of claim 25, wherein the demodulating the formatted payload data further comprises at least one of:
pulse position demodulating the formatted payload data;
time division demultiplexing the formatted payload data;
frequency division demultiplexing the formatted payload data;
pulse amplitude demodulating the formatted payload data;
amplitude shift dekeying the formatted payload data;
frequency shift dekeying the formatted payload data;
phase shift dekeying the formatted payload data; and

quadrature phase shift dekeying the formatted payload data.

27. The method of claim 1, wherein the deformatting the formatted overhead data further comprises:

decoding the formatted overhead data as at least part of the second transmission format convention to produce decoded overhead data.

28. The method of claim 27, wherein the decoding the formatted overhead data further comprises at least one of:

multilevel decoding the formatted overhead data;

non return to zero (NRZ) decoding the formatted overhead data;

Manchester decoding the formatted overhead data;

block decoding the formatted overhead data; and

nB/mB decoding the formatted overhead data, where n < m.

29. The method of claim 27, wherein the deformatting the formatted overhead data further comprises:

demodulating the decoded overhead data as at least part of the second transmission format convention to produce the retrieved overhead data.

30. The method of claim 1, wherein the deformatting the formatted overhead data further comprises:

demodulating the formatted overhead data as at least part of the second transmission format convention to produce decoded overhead data.

31. The method of claim 30, wherein the demodulating the formatted overhead data further comprises at least one of:

pulse position demodulating the formatted overhead data;

time division demultiplexing the formatted overhead data;

frequency division demultiplexing the formatted overhead data;

pulse amplitude demodulating the formatted overhead data;

amplitude shift dekeying the formatted overhead data;

frequency shift dekeying the formatted overhead data;

phase shift dekeying the formatted overhead data; and

quadrature phase shift dekeying the formatted overhead data.

32. The method of claim 1, wherein the receiving the formatted overhead data and the formatted payload data further comprises:

receiving the formatted overhead data on a first communication path; and

receiving the formatted payload data on a second communication path.

33. The method of claim 32 further comprises at least one of:

synchronously receiving the formatted overhead data and the formatted payload data such that the formatted overhead data is associated with the formatted payload data; and

asynchronously receiving the formatted overhead data and the formatted payload data to the target, wherein the formatted overhead data and the formatted payload data include an identifier to associate the formatted overhead data with the formatted payload data.

34. The method of claim 1, wherein the receiving the formatted payload data and the formatted overhead data further comprises:

receiving the formatted payload data and the formatted overhead data in a frame.

35. The method of claim 1, wherein the receiving the formatted payload data and the formatted overhead data further comprises at least one of:

monitoring at least one communication path for the formatted payload data and the formatted overhead data:

receiving the formatted overhead data and the formatted payload data in an assigned time frame;

receiving the formatted overhead data and the formatted payload data at an assigned frequency; and

receiving instructions to monitor the at least one communication path from a controller.

36. A system for transceiving data in a micro area network that includes a plurality of data transceiving entities, the system comprises:

first processing module;

second processing module;

first memory operably coupled to the first processing module, wherein the first memory includes first operational instructions that cause the first processing module to:

obtain, as a first data transceiving entity of the plurality of data transceiving entities, a data unit for transmission, wherein the data unit includes payload data and overhead data, wherein the overhead data identifies at least one target entity of the plurality of data transceiving entities;

format, as the first data transceiving entity, the payload data using a first transmission format convention to produce formatted payload data;

format, as the first data transceiving entity, the overhead data using a second transmission format convention to produce formatted overhead data;

transmit, as the first data transceiving entity, the formatted payload data and the formatted overhead data to the at least one target entity;

second memory operably coupled to the first processing module, wherein the second memory includes second operational instructions that cause the second processing module to:

receive, as the at least one target entity, the formatted payload data and the formatted overhead data;

deformat, as the at least one target entity, the formatted payload data using the first transmission format convention to produce retrieved payload data;

deformat, as the at least one target entity, the formatted overhead data using the second transmission format convention to produce retrieved overhead data; and

reconstruct, as the at least one target entity, the data unit from the retrieved payload data and the retrieved overhead data.

37. The system of claim 36, wherein the first memory further comprises operational instructions that cause the first processing module to obtain the data unit by at least one of:

receiving the data from a source external to the micro area network;

receiving the data from a source within the micro area network; and

generating the data.

38. The system of claim 36, wherein the first memory further comprises operational instructions that cause the first processing module to format the payload data by:

encoding the payload data as at least part of the first transmission format convention to produce encoded payload data.

39. The system of claim 38, wherein the first memory further comprises operational instructions that cause the first processing module to encode the payload data by at least one of:

multilevel encoding the payload data;
non return to zero (NRZ) encoding the payload data;
Manchester encoding the payload data;
block encoding the payload data; and
nB/mB encoding the payload data, where n < m.

40. The system of claim 38, wherein the first memory further comprises operational instructions that cause the first processing module to format the payload data by:

modulating the encoded payload data as at least part of the first transmission format convention to produce the formatted payload data.

41. The system of claim 36, wherein the first memory further comprises operational instructions that cause the first processing module to format the payload data by:

obtaining data transmission parameters that include at least one of: serial data transmission, parallel data transmission, single path transmission, multi-path transmission, and data rate.

42. The system of claim 36, wherein the first memory further comprises operational instructions that cause the first processing module to format the payload data by:

modulating the payload data as at least part of the first transmission format convention to produce encoded payload data.

43. The system of claim 42, wherein the first memory further comprises operational instructions that cause the first processing module to modulate the payload data by at least one of:

pulse position modulating the payload data;
time division multiplexing the payload data;
frequency division multiplexing the payload data;
pulse amplitude modulating the payload data;
amplitude shift keying the payload data;
frequency shift keying the payload data;
phase shift keying the payload data;
quadrature phase shift keying the payload data; and
carrier sense multiple accessing the payload data.

44. The system of claim 36, wherein the first memory further comprises operational instructions that cause the first processing module to format the overhead data by:

encoding the overhead data as at least part of the second transmission format convention to produce encoded overhead data.

45. The system of claim 44, wherein the first memory further comprises operational instructions that cause the first processing module to encode the overhead data by at least one of:

multilevel encoding the overhead data;
non return to zero (NRZ) encoding the overhead data;
Manchester encoding the overhead data;
block encoding the overhead data; and

nB/mB encoding the overhead data, where n < m.

46. The system of claim 44, wherein the first memory further comprises operational instructions that cause the first processing module to format the overhead data by:

modulating the encoded overhead data as at least part of the second transmission format convention to produce the formatted overhead data.

47. The system of claim 36, wherein the first memory further comprises operational instructions that cause the first processing module to format the overhead data by:

modulating the overhead data as at least part of the second transmission format convention to produce encoded overhead data.

48. The system of claim 47, wherein the first memory further comprises operational instructions that cause the first processing module to modulate the overhead data by at least one of:

pulse position modulating the overhead data;
time division multiplexing the overhead data;
frequency division multiplexing the overhead data;
pulse amplitude modulating the overhead data;
amplitude shift keying the overhead data;
frequency shift keying the overhead data;
phase shift keying the overhead data;
quadrature phase shift keying the overhead data; and
carrier sense multiple accessing the overhead data.

49. The system of claim 36, wherein the first memory further comprises operational instructions that cause the first processing module to format the overhead data by:

interpreting the overhead data to identify the at least one target entity;

determining whether the at least one target entity is a termination destination of the payload data or an intermediate destination of the payload data; and

when the at least one target entity is the termination destination, modifying at least one of network layer overhead information, link layer overhead information, and physical overhead information of the overhead data into micro area network overhead data, wherein the micro area network overhead data identifies the target entity and data use information.

50. The system of claim 49, wherein the first memory further comprises operational instructions that cause the first processing module to:

when the at least one target entity is the intermediate destination, provide at least a portion of the at least one of the network layer overhead information, the link layer overhead information, and the physical overhead information of the overhead data to the target entity.

51. The system of claim 49, wherein the first memory further comprises operational instructions that cause the first processing module to:

determine type of the at least one target entity; and

generate the micro area network overhead data based on the type of at least one target entity.

52. The system of claim 36, wherein the first memory further comprises operational instructions that cause the first processing module to transmit the formatted overhead data and the formatted payload data by:

transmitting the formatted overhead data on a first communication path to the at least one target entity; and

transmitting the formatted payload data on a second communication path to the at least one target entity.

53. The system of claim 52, wherein the first memory further comprises operational instructions that cause the first processing module to, at least one of,:

synchronously transmit the formatted overhead data and the formatted payload data to the at least one target entity such that the formatted overhead data is associated with the formatted payload data; and

asynchronously transmit the formatted overhead data and the formatted payload data to the at least one target entity, wherein the formatted overhead data and the formatted payload data include an identifier to associate the formatted overhead data with the formatted payload data.

54. The system of claim 36, wherein the first memory further comprises operational instructions that cause the first processing module to transmit the formatted payload data and the formatted overhead data by:

transmit the formatted payload data and the formatted overhead data in a frame.

55. The system of claim 36, wherein the first memory further comprises operational instructions that cause the first processing module to transmit the formatted payload data and the formatted overhead data by:

obtaining access to at least one communication path to the at least one target entity via at least one of:

utilizing carrier sense multiple access protocol;

transmitting the formatted overhead data and the formatted payload data in an assigned time frame;

transmitting the formatted overhead data and the formatted payload data at an assigned frequency; and

receiving access to the at least one communication path from a controller.

56. The system of claim 36, wherein the second memory further comprises operational instructions that cause the second processing module to deformat the formatted payload data by:

decoding the formatted payload data as at least part of the first transmission format convention to produce decoded payload data.

57. The system of claim 56, wherein the second memory further comprises operational instructions that cause the second processing module to decode the formatted payload data by at least one of:

multilevel decoding the formatted payload data;

non return to zero (NRZ) decoding the formatted payload data;

Manchester decoding the formatted payload data;

block decoding the formatted payload data; and

nB/mB decoding the formatted payload data, where n < m.

58. The system of claim 56, wherein the second memory further comprises operational instructions that cause the second processing module to deformat the formatted payload data by:

demodulating the decoded payload data as at least part of the first transmission format convention to produce the retrieved payload data.

59. The system of claim 36, wherein the second memory further comprises operational instructions that cause the second processing module to deformat the formatted payload data by:

obtaining data transmission parameters that include at least one of: serial data transmission, parallel data transmission, signal path transmission, multi-path transmission, and data rate.

60. The system of claim 36, wherein the second memory further comprises operational instructions that cause the second processing module to deformat the formatted payload data by:

demodulating the formatted payload data as at least part of the first transmission format convention to produce decoded payload data.

61. The system of claim 60, wherein the second memory further comprises operational instructions that cause the second processing module to demodulate the formatted payload data by at least one of:

pulse position demodulating the formatted payload data;

time division demultiplexing the formatted payload data;

frequency division demultiplexing the formatted payload data;

pulse amplitude demodulating the formatted payload data;

amplitude shift dekeying the formatted payload data;

frequency shift dekeying the formatted payload data;

phase shift dekeying the formatted payload data; and

quadrature phase shift dekeying the formatted payload data.

62. The system of claim 36, wherein the second memory further comprises operational instructions that cause the second processing module to deformat the formatted overhead data by:

decoding the formatted overhead data as at least part of the second transmission format convention to produce decoded overhead data.

63. The system of claim 62, wherein the second memory further comprises operational instructions that cause the second processing module to decode the formatted overhead data by at least one of:

multilevel decoding the formatted overhead data;

non return to zero (NRZ) decoding the formatted overhead data;

Manchester decoding the formatted overhead data;

block decoding the formatted overhead data; and

nB/mB decoding the formatted overhead data, where n < m.

64. The system of claim 62, wherein the second memory further comprises operational instructions that cause the second processing module to deformat the formatted overhead data by:

demodulating the decoded overhead data as at least part of the second transmission format convention to produce the retrieved overhead data.

65. The system of claim 36, wherein the second memory further comprises operational instructions that cause the second processing module to deformat the formatted overhead data by:

demodulating the formatted overhead data as at least part of the second transmission format convention to produce decoded overhead data.

66. The system of claim 65, wherein the second memory further comprises operational instructions that cause the second processing module to demodulate the formatted overhead data by at least one of:

pulse position demodulating the formatted overhead data;

time division demultiplexing the formatted overhead data;

frequency division demultiplexing the formatted overhead data;

pulse amplitude demodulating the formatted overhead data;

amplitude shift dekeying the formatted overhead data;

frequency shift dekeying the formatted overhead data;

phase shift dekeying the formatted overhead data; and

quadrature phase shift dekeying the formatted overhead data.

67. The system of claim 36, wherein the second memory further comprises operational instructions that cause the second processing module to receive the formatted overhead data and the formatted payload data by:

receiving the formatted overhead data on a first communication path; and

receiving the formatted payload data on a second communication path.

68. The system of claim 67, wherein the second memory further comprises operational instructions that cause the second processing module to, at least one of,:

synchronously receive the formatted overhead data and the formatted payload data such that the formatted overhead data is associated with the formatted payload data; and

asynchronously receive the formatted overhead data and the formatted payload data to the target, wherein the formatted overhead data and the formatted payload data include an identifier to associate the formatted overhead data with the formatted payload data.

69. The system of claim 36, wherein the second memory further comprises operational instructions that cause the second

processing module to receive the formatted payload data and the formatted overhead data by:

receiving the formatted payload data and the formatted overhead data in a frame.

70. The system of claim 36, wherein the second memory further comprises operational instructions that cause the second processing module to receive the formatted payload data and the formatted overhead data by at least one of:

monitoring at least one communication path for the formatted payload data and the formatted overhead data:

receiving the formatted overhead data and the formatted payload data in an assigned time frame;

receiving the formatted overhead data and the formatted payload data at an assigned frequency; and

receiving instructions to monitor the at least one communication path from a controller.

71. A method for transmitting data in a micro area network, the method comprises:

obtaining a data unit for transmission, wherein the data unit includes payload data and overhead data, wherein the overhead data identifies at least one target entity of the micro area network for receiving the data unit;

formatting the payload data using a first transmission format convention to produce formatted payload data;

formatting the overhead data using a second transmission format convention to produce formatted overhead data; and

transmitting the formatted payload data and the formatted overhead data to the at least one target entity in the micro area network.

72. The method of claim 71, wherein the obtaining the data further comprises at least one of:

receiving the data from a source external to the micro area network;

receiving the data from a source within the micro area network; and

generating the data.

73. The method of claim 71, wherein the formatting the payload data further comprises:

encoding the payload data as at least part of the first transmission format convention to produce encoded payload data.

74. The method of claim 73, wherein the encoding the payload data further comprises at least one of:

multilevel encoding the payload data;

non return to zero (NRZ) encoding the payload data;

Manchester encoding the payload data;

block encoding the payload data; and

nB/mB encoding the payload data, where n < m.

75. The method of claim 73, wherein the formatting the payload data further comprises:

modulating the encoded payload data as at least part of the first transmission format convention to produce the formatted payload data.

76. The method of claim 1, wherein the formatting the payload data further comprises:

obtaining data transmission parameters that include at least one of: serial data transmission, parallel data transmission, signal path transmission, multi-path transmission, and data rate.

77. The method of claim 71, wherein the formatting the payload data further comprises:

modulating the payload data as at least part of the first transmission format convention to produce encoded payload data.

78. The method of claim 77, wherein the modulating the payload data further comprises at least one of:

pulse position modulating the payload data;
time division multiplexing the payload data;
frequency division multiplexing the payload data;
pulse amplitude modulating the payload data;
amplitude shift keying the payload data;
frequency shift keying the payload data;
phase shift keying the payload data;
quadrature phase shift keying the payload data; and
carrier sense multiple accessing the payload data.

79. The method of claim 71, wherein the formatting the overhead data further comprises:

encoding the overhead data as at least part of the second transmission format convention to produce encoded overhead data.

80. The method of claim 79, wherein the encoding the overhead data further comprises at least one of:

multilevel encoding the overhead data;
non return to zero (NRZ) encoding the overhead data;
Manchester encoding the overhead data;
block encoding the overhead data; and
nB/mB encoding the overhead data, where n < m.

81. The method of claim 79, wherein the formatting the overhead data further comprises:

modulating the encoded overhead data as at least part of the second transmission format convention to produce the formatted overhead data.

82. The method of claim 71, wherein the formatting the overhead data further comprises:

modulating the overhead data as at least part of the second transmission format convention to produce encoded overhead data.

83. The method of claim 82, wherein the modulating the overhead data further comprises at least one of:

pulse position modulating the overhead data;
time division multiplexing the overhead data;
frequency division multiplexing the overhead data;
pulse amplitude modulating the overhead data;
amplitude shift keying the overhead data;
frequency shift keying the overhead data;
phase shift keying the overhead data;
quadrature phase shift keying the overhead data; and
carrier sense multiple accessing the overhead data.

84. The method of claim 71, wherein the formatting the overhead data further comprises:

interpreting the overhead data to identify a target entity within the micro area network;

determining whether the target entity is a termination destination of the payload data or an intermediate destination of the payload data; and

when the target entity is the termination destination, modifying at least one of network layer overhead information, link layer overhead information, and physical overhead information of the overhead data into micro area network

overhead data, wherein the micro area network overhead data identifies the target entity and data use information.

85. The method of claim 84 further comprises:

when the target entity is the intermediate destination, providing at least a portion of the at least one of the network layer overhead information, the link layer overhead information, and the physical overhead information of the overhead data to the target entity.

86. The method of claim 84 further comprises:

determining type of target entity; and

generating the micro area network overhead data based on the type of target entity.

87. The method of claim 71, wherein the transmitting the formatted overhead data and the formatted payload data further comprises:

transmitting the formatted overhead data on a first communication path to the target entity; and

transmitting the formatted payload data on a second communication path to the target entity.

88. The method of claim 87 further comprises at least one of:

synchronously transmitting the formatted overhead data and the formatted payload data to the target such that the formatted overhead data is associated with the formatted payload data; and

asynchronously transmitting the formatted overhead data and the formatted payload data to the target, wherein the formatted overhead data and the formatted payload data include an identifier to associate the formatted overhead data with the formatted payload data.

89. The method of claim 71, wherein the transmitting the formatted payload data and the formatted overhead data further comprises:

transmitting the formatted payload data and the formatted overhead data in a frame.

90. The method of claim 71, wherein the transmitting the formatted payload data and the formatted overhead data further comprises:

obtaining access to at least one communication path to the at least one target entity via at least one of:

utilizing carrier sense multiple access protocol;

transmitting the formatted overhead data and the formatted payload data in an assigned time frame;

transmitting the formatted overhead data and the formatted payload data at an assigned frequency; and

receiving access to the at least one communication path from a controller.

91. A method for transmitting data within a network, the method comprises:

obtaining a data unit for transmission to a target entity within the micro area network;

logically separating overhead data of the data from payload data of the data unit;

formatting the overhead data using a data formatting convention to produce formatted overhead data; and

formatting at least a portion of the payload data utilizing the formatted overhead data based on the data formatting convention to produce a formatted data unit.

92. The method of claim 91, wherein the data unit comprises at least one of: a datagram, a data packet, and a data frame.

93. The method of claim 91, wherein the formatting the overhead data further comprises:

determining rate of the payload data;

determining size of the payload data;

determining size of the overhead data; and

adjusting rate of the overhead data based on the rate of the payload data, the size of the payload data, and the size of the overhead data to produce an adjusted rate of the overhead data such that a rate-size function of the payload data substantially equals an adjusted rate-size function of the overhead data.

94. The method of claim 93, wherein the formatting the overhead data further comprises:

encoding the overhead data based on at least one of: multilevel encoding, pulse position modulation, pulse amplitude modulation, amplitude shift keying, and phase shift keying to produce the formatted overhead data.

95. The method of claim 94, wherein the formatting the payload data further comprises:

encoding the payload data based on at least one of: multilevel encoding, block encoding, nB/mB encoding, non return to zero encoding, and Manchester encoding, where $n < m$, to produce encoded payload data; and

modulating the encoded payload data on the formatted overhead data to produce the formatted data unit.

96. The method of claim 93 further comprises:

determining whether the adjusted rate-size function of the overhead data is within acceptable tolerance limits of the rate-size function of the payload data; and

when the adjusted rate-size function of the overhead data is not within the acceptable tolerance limits of the rate-size function of the payload data, padding the overhead data until the adjusted rate-size function of the overhead data is within the acceptable tolerance limits of the rate-size function of the payload data.

97. The method of claim 91, wherein the formatting the overhead data further comprises:

adding idle data to the overhead data to produced padded overhead data such that a rate-size function of the payload data substantially equals a rate-size function of the padded overhead data.

98. The method of claim 91, wherein the formatting the overhead data further comprises:

providing control data with the overhead data; and

formatting the control data and the overhead data to produce the formatted overhead data.

99. The method of claim 91 further comprises:

obtaining the data unit as a data packet of a physical network, wherein the payload data of the data unit includes a datagram, and wherein the datagram includes datagram overhead data and datagram payload data;

logically separating the overhead data, the datagram overhead data, and the datagram payload data;

formatting the datagram overhead data based on the encoding scheme to produce formatted datagram overhead data; and

formatting the datagram payload data utilizing the formatted overhead data and the formatted datagram overhead data based on the data formatting convention to produce the formatted data unit.

100. An apparatus for transmitting data in a micro area network, the apparatus comprises:

processing module; and

memory operably coupled to the processing module, wherein the memory includes operational instructions that cause the processing module to:

obtain data for transmission, wherein the data includes at least one frame, wherein each of the at least one frames includes payload data and overhead data, wherein the overhead data identifies at least one target entity of the micro area network for receiving the at least one frame;

format the payload data using a first transmission format convention to produce formatted payload data;

format the overhead data using a second transmission format convention to produce formatted overhead data; and

transmit the formatted payload data and the formatted overhead data to the at least one target entity in the micro area network.

101. The apparatus of claim 100, wherein the memory further comprises operational instructions that cause the processing module to obtain the data by at least one of:

receiving the data from a source external to the micro area network;

receiving the data from a source within the micro area network; and

generating the data.

102. The apparatus of claim 100, wherein the memory further comprises operational instructions that cause the processing module to format the payload data by:

encoding the payload data as at least part of the first transmission format convention to produce encoded payload data.

103. The apparatus of claim 102, wherein the memory further comprises operational instructions that cause the processing module to encode the payload data by at least one of:

multilevel encoding the payload data;

non return to zero (NRZ) encoding the payload data;

Manchester encoding the payload data;

block encoding the payload data; and

nB/mB encoding the payload data, where n < m.

104. The apparatus of claim 102, wherein the memory further comprises operational instructions that cause the processing module to format the payload data by:

obtaining a modulation scheme for modulating the encoded payload data as at least part of the first transmission format convention to produce the formatted payload data.

105. The apparatus of claim 100, wherein the memory further comprises operational instructions that cause the processing module to format the payload data by:

obtaining data transmission parameters that include at least one of: serial data transmission, parallel data transmission, signal path transmission, multi-path transmission, and data rate.

106. The apparatus of claim 100, wherein the memory further comprises operational instructions that cause the processing module to format the payload data by:

modulating the payload data as at least part of the first transmission format convention to produce encoded payload data.

107. The apparatus of claim 106, wherein the memory further comprises operational instructions that cause the processing module to modulate the payload data by at least one of:

pulse position modulating the payload data;
time division multiplexing the payload data;
frequency division multiplexing the payload data;
pulse amplitude modulating the payload data;
amplitude shift keying the payload data;
frequency shift keying the payload data;
phase shift keying the payload data;
quadrature phase shift keying the payload data; and
carrier sense multiple accessing the payload data.

108. The apparatus of claim 100, wherein the memory further comprises operational instructions that cause the processing module to format the overhead data by:

encoding the overhead data as at least part of the second transmission format convention to produce encoded overhead data.

109. The apparatus of claim 108, wherein the memory further comprises operational instructions that cause the processing module to encode the overhead data by at least one of:

multilevel encoding the overhead data;
non return to zero (NRZ) encoding the overhead data;
Manchester encoding the overhead data;
block encoding the overhead data; and
nB/mB encoding the overhead data, where n < m.

110. The apparatus of claim 108, wherein the memory further comprises operational instructions that cause the processing module to format the overhead data by:

modulating the encoded overhead data as at least part of the second transmission format convention to produce the formatted overhead data.

111. The apparatus of claim 100, wherein the memory further comprises operational instructions that cause the processing module to format the overhead data by:

modulating the overhead data as at least part of the second transmission format convention to produce encoded overhead data.

112. The apparatus of claim 111, wherein the memory further comprises operational instructions that cause the processing module to modulate the overhead data by at least one of:

pulse position modulating the overhead data;
time division multiplexing the overhead data;
frequency division multiplexing the overhead data;
pulse amplitude modulating the overhead data;
amplitude shift keying the overhead data;
frequency shift keying the overhead data;
phase shift keying the overhead data;
quadrature phase shift keying the overhead data; and
carrier sense multiple accessing the overhead data.

113. The apparatus of claim 100, wherein the memory further comprises operational instructions that cause the processing module to format the overhead data by:

interpreting the overhead data to identify a target entity within the micro area network;

determining whether the target entity is a termination destination of the payload data or an intermediate destination of the payload data; and

when the target entity is the termination destination, modifying at least one of network layer overhead information, link layer overhead information, and physical overhead information of the overhead data into micro area network overhead data, wherein the micro area network overhead data identifies the target entity and data use information.

114. The apparatus of claim 113, wherein the memory further comprises operational instructions that cause the processing module to:

when the target entity is the intermediate destination, provide at least a portion of the at least one of the network layer overhead information, the link layer overhead information, and the physical overhead information of the overhead data to the target entity.

115. The apparatus of claim 113, wherein the memory further comprises operational instructions that cause the processing module to:

determine type of target entity; and

generate the micro area network overhead data based on the type of target entity.

116. The apparatus of claim 100, wherein the memory further comprises operational instructions that cause the processing module to transmit the formatted overhead data and the formatted payload data by:

transmitting the formatted overhead data on a first communication path to the target entity; and

transmitting the formatted payload data on a second communication path the target entity.

117. The apparatus of claim 116, wherein the memory further comprises operational instructions that cause the processing module to perform at least one of:

synchronously transmitting the formatted overhead data and the formatted payload data to the target such that the formatted overhead data is associated with the formatted payload data; and

asynchronously transmitting the formatted overhead data and the formatted payload data to the target, wherein the formatted overhead data and the formatted payload data include an identifier to associate the formatted overhead data with the formatted payload data.

118. The apparatus of claim 100, wherein the memory further comprises operational instructions that cause the processing module to transmit the formatted payload data and the formatted overhead data by:

transmitting the formatted payload data and the formatted overhead data in a frame.

119. The apparatus of claim 100, wherein the memory further comprises operational instructions that cause the processing module to transmit the formatted payload data and the formatted overhead data by:

obtaining access to at least one communication path to the at least one target entity via at least one of:

utilizing carrier sense multiple access protocol;

transmitting the formatted overhead data and the formatted payload data in an assigned time frame;

transmitting the formatted overhead data and the formatted payload data at an assigned frequency; and

receiving access to the at least one communication path from a controller.

120. An apparatus for transmitting data within a network, the apparatus comprises:

processing module; and

memory operably coupled to the processing module, wherein the memory includes operational instructions that cause the processing module to:

obtain a data unit for transmission to a target entity within the micro area network;

logically separate overhead data of the data from payload data of the data unit;

format the overhead data using a data formatting convention to produce formatted overhead data; and

format at least a portion of the payload data utilizing the formatted overhead data based on the data formatting convention to produce a formatted data unit.

121. The apparatus of claim 120, wherein the memory further comprises operational instructions that cause the processing module to format the overhead data by:

determining rate of the payload data;

determining size of the payload data;

determining size of the overhead data; and

adjusting the rate of the overhead data based on the rate of the payload data, the size of the payload data, and the size of the overhead data to produce an adjusted rate of the overhead data such that a rate-size function of the payload data substantially equals an adjusted rate-size function of the overhead data.

122. The apparatus of claim 120, wherein the memory further comprises operational instructions that cause the processing module to format the overhead data by:

encoding the overhead data based on at least one of: multilevel encoding, pulse position modulation, pulse amplitude modulation, amplitude shift keying, and phase shift keying to produce the formatted overhead data.

123. The apparatus of claim 122, wherein the memory further comprises operational instructions that cause the processing module to format the payload data by:

encoding the payload data based on at least one of: multilevel encoding, block encoding, nB/mB encoding, non return to zero encoding, and Manchester encoding, where $n < m$, to produce encoding payload data; and

modulating the encoded payload data on the formatted overhead data to produce the formatted data unit.

124. The apparatus of claim 121, wherein the memory further comprises operational instructions that cause the processing module to:

determine whether the adjusted rate-size function of the overhead data is within acceptable tolerance limits of the rate-size function of the payload data;

when the adjusted rate-size function of the overhead data is not within the acceptable tolerance limits of the rate-size function of the payload data, pad the overhead data until the adjusted rate-size function of the overhead data is within the acceptable tolerance limits of the rate-size function of the payload data.

125. The apparatus of claim 120, wherein the memory further comprises operational instructions that cause the processing module to format the overhead data by:

adding idle data to the overhead data to produced padded overhead data such that a rate-size function of the payload data substantially equals a rate-size function of the padded overhead data.

126. The apparatus of claim 120, wherein the memory further comprises operational instructions that cause the processing module to format the overhead data by:

providing control data with the overhead data; and

formatting the control data and the overhead data to produce the formatted overhead data.

127. The apparatus of claim 120, wherein the memory further comprises operational instructions that cause the processing module to:

obtain the data unit as a data packet of a physical network, wherein the payload data of the data unit includes a datagram, and wherein the datagram includes datagram overhead data and datagram payload data;

logically separate the overhead data, the datagram overhead data, and the datagram payload data;

format the datagram overhead data based on the encoding scheme to produce formatted datagram overhead data; and

format the datagram payload data utilizing the formatted overhead data and the formatted datagram overhead data based on the data formatting convention to produce the formatted data unit.

128. A method for receiving data in a micro area network, the method comprises:

receiving formatted payload data and formatted overhead data from at least one transmitting entity in the micro area network;

deformatting the formatted payload data using a first transmission format convention to produce retrieved payload data;

deformatting the formatted overhead data using a second transmission format convention to produce retrieved overhead data; and

reconstructing a data unit from the retrieved payload data and the retrieved overhead data.

129. The method of claim 128, wherein the deformatting the formatted payload data further comprises:

decoding the formatted payload data as at least part of the first transmission format convention to produce decoded payload data.

130. The method of claim 129, wherein the decoding the formatted payload data further comprises at least one of:

multilevel decoding the formatted payload data;

non return to zero (NRZ) decoding the formatted payload data;

Manchester decoding the formatted payload data;

block decoding the formatted payload data; and

nB/mB decoding the formatted payload data, where n < m.

131. The method of claim 129, wherein the deformatting the formatted payload data further comprises:

demodulating the decoded payload data as at least part of the first transmission format convention to produce the retrieved payload data.

132. The method of claim 128, wherein the deformatting the formatted payload data further comprises:

obtaining data transmission parameters that include at least one of: serial data transmission, parallel data transmission, signal path transmission, multi-path transmission, and data rate.

133. The method of claim 128, wherein the deformatting the formatted payload data further comprises:

demodulating the formatted payload data as at least part of the first transmission format convention to produce decoded payload data.

134. The method of claim 133, wherein the demodulating the formatted payload data further comprises at least one of:

pulse position demodulating the formatted payload data;

time division demultiplexing the formatted payload data;

frequency division demultiplexing the formatted payload data;

pulse amplitude demodulating the formatted payload data;

amplitude shift dekeying the formatted payload data;

frequency shift dekeying the formatted payload data;

phase shift dekeying the formatted payload data; and

quadrature phase shift dekeying the formatted payload data.

135. The method of claim 128, wherein the deformatting the formatted overhead data further comprises:

decoding the formatted overhead data as at least part of the second transmission format convention to produce decoded overhead data.

136. The method of claim 135, wherein the decoding the formatted overhead data further comprises at least one of:

multilevel decoding the formatted overhead data;

non return to zero (NRZ) decoding the formatted overhead data;

Manchester decoding the formatted overhead data;

block decoding the formatted overhead data; and

nB/mB decoding the formatted overhead data, where n < m.

137. The method of claim 135, wherein the deformatting the formatted overhead data further comprises:

demodulating the decoded overhead data as at least part of the second transmission format convention to produce the retrieved overhead data.

138. The method of claim 128, wherein the deformatting the formatted overhead data further comprises:

demodulating the formatted overhead data as at least part of the second transmission format convention to produce decoded overhead data.

139. The method of claim 138, wherein the demodulating the formatted overhead data further comprises at least one of:

pulse position demodulating the formatted overhead data;

time division demultiplexing the formatted overhead data;

frequency division demultiplexing the formatted overhead data;

pulse amplitude demodulating the formatted overhead data;

amplitude shift dekeying the formatted overhead data;

frequency shift dekeying the formatted overhead data;

phase shift dekeying the formatted overhead data; and

quadrature phase shift dekeying the formatted overhead data.

140. The method of claim 128, wherein the receiving the formatted overhead data and the formatted payload data further comprises:

receiving the formatted overhead data on a first communication path; and

receiving the formatted payload data on a second communication path.

141. The method of claim 140 further comprises at least one of:

synchronously receiving the formatted overhead data and the formatted payload data such that the formatted overhead data is associated with the formatted payload data; and

asynchronously receiving the formatted overhead data and the formatted payload data to the target, wherein the formatted overhead data and the formatted payload data include an identifier to associate the formatted overhead data with the formatted payload data.

142. The method of claim 128, wherein the receiving the formatted payload data and the formatted overhead data further comprises:

receiving the formatted payload data and the formatted overhead data in a frame.

143. The method of claim 128, wherein the receiving the formatted payload data and the formatted overhead data further comprises at least one of:

monitoring at least one communication path for the formatted payload data and the formatted overhead data:

receiving the formatted overhead data and the formatted payload data in an assigned time frame;

receiving the formatted overhead data and the formatted payload data at an assigned frequency; and

receiving instructions to monitor the at least one communication path from a controller.

144. A method for receiving data within a network, the method comprises:

receiving a formatted data unit that includes formatted overhead data and formatted payload data;

deformatting the formatted payload data utilizing the formatted overhead data based on a data formatting convention to produce retrieved payload data;

deformatting the formatted overhead data using the data formatting convention to produce retrieved overhead data; and

logically combining the retrieved overhead data and the retrieved payload data to produce a retrieved data unit.

145. The method of claim 144, wherein the data unit comprises at least one of: a datagram, a data packet, and a data frame.

146. The method of claim 144, wherein the deformatting the formatted overhead data further comprises:

decoding the formatted overhead data based on at least one of: multilevel decoding, pulse position demodulation, pulse amplitude demodulation, amplitude shift dekeying, and phase shift dekeying to produce the retrieved overhead data.

147. The method of claim 146, wherein the deformatting the formatted payload data further comprises:

filtering the formatted data unit to produce filtered payload data; and

decoding the filtered payload data based on at least one of: multilevel decoding, block decoding, nB/mB decoding, non return to zero decoding, and Manchester decoding, where n < m, to produce the retrieved payload data.

148. The method of claim 144, wherein the deformatting the formatted overhead data further comprises:

removing idle data from the retrieved overhead data to produced overhead data.

149. The method of claim 144, wherein the deformatting the formatted overhead data further comprises:

identifying control data within the retrieved overhead data.

150. The method of claim 144 further comprises:

receiving a formatted data unit that includes the formatted overhead data, formatted datagram overhead data, and formatted datagram payload data;

deformatting the formatted datagram payload data utilizing the formatted overhead data based on the data formatting convention to produce retrieved datagram payload data;

deformatting the formatted datagram overhead data using the data formatting convention to produce retrieved datagram overhead data; and

logically combining the retrieved overhead data, the retrieved datagram overhead data, and the retrieved datagram payload data to produce the retrieved data unit.

151. An apparatus for receiving data in a micro area network, the apparatus comprises:

processing module; and

memory operably coupled to the processing module, wherein the memory includes operational instructions that cause the processing module to:

receive formatted payload data and formatted overhead data from at least one transmitting entity in the micro area network;

deformat the formatted payload data using a first transmission format convention to produce retrieved payload data;

deformat the formatted overhead data using a second transmission format convention to produce retrieved overhead data; and

reconstruct a data unit from the retrieved payload data and the retrieved overhead data.

152. The apparatus of claim 151, wherein the memory further comprises operation instructions that cause the processing module to deformat the formatted payload data by:

decoding the formatted payload data as at least part of the first transmission format convention to produce decoded payload data.

153. The apparatus of claim 152, wherein the memory further comprises operation instructions that cause the processing module to decode the formatted payload data by at least one of:

multilevel decoding the formatted payload data;

non return to zero (NRZ) decoding the formatted payload data;

Manchester decoding the formatted payload data;

block decoding the formatted payload data; and

nB/mB decoding the formatted payload data, where n < m.

154. The apparatus of claim 152, wherein the memory further comprises operation instructions that cause the processing module to deformat the formatted payload data by:

demodulating the decoded payload data as at least part of the first transmission format convention to produce the retrieved payload data.

155. The apparatus of claim 151, wherein the memory further comprises operation instructions that cause the processing module to deformat the formatted payload data by:

obtaining data transmission parameters that include at least one of: serial data transmission, parallel data transmission, signal path transmission, multi-path transmission, and data rate.

156. The apparatus of claim 151, wherein the memory further comprises operation instructions that cause the processing module to deformat the formatted payload data by:

demodulating the formatted payload data as at least part of the first transmission format convention to produce decoded payload data.

157. The apparatus of claim 156, wherein the memory further comprises operation instructions that cause the processing module to demodulate the formatted payload data by at least one of:

pulse position demodulating the formatted payload data;

time division demultiplexing the formatted payload data;

frequency division demultiplexing the formatted payload data;

pulse amplitude demodulating the formatted payload data;

frequency shift dekeying the formatted payload data;

phase shift dekeying the formatted payload data; and

quadrature phase shift dekeying the formatted payload data.

158. The apparatus of claim 151, wherein the memory further comprises operation instructions that cause the processing module to deformat the formatted overhead data:

obtaining a decoding scheme for decoding the formatted overhead data as at least part of the second transmission format convention to produce decoded overhead data.

159. The apparatus of claim 158, wherein the memory further comprises operation instructions that cause the processing module to decode the formatted overhead data by at least one of:

multilevel decoding the formatted overhead data;

non return to zero (NRZ) decoding the formatted overhead data;

Manchester decoding the formatted overhead data;

block decoding the formatted overhead data; and

nB/mB decoding the formatted overhead data, where n < m.

160. The apparatus of claim 158, wherein the memory further comprises operation instructions that cause the processing module to deformat the formatted overhead data by:

obtaining a demodulation scheme for demodulating the decoded overhead data as at least part of the second transmission format convention to produce the retrieved overhead data.

161. The apparatus of claim 151, wherein the memory further comprises operation instructions that cause the processing module to deformat the formatted overhead data by:

obtaining a demodulation scheme for demodulating the formatted overhead data as at least part of the second transmission format convention to produce decoded overhead data.

162. The apparatus of claim 161, wherein the memory further comprises operation instructions that cause the processing

module to demodulate the formatted overhead data by at least one of:

pulse position demodulating the formatted overhead data;

time division demultiplexing the formatted overhead data;

frequency division demultiplexing the formatted overhead data;

pulse amplitude demodulating the formatted overhead data;

amplitude shift dekeying the formatted overhead data;

frequency shift dekeying the formatted overhead data;

phase shift dekeying the formatted overhead data; and

quadrature phase shift dekeying the formatted overhead data.

163. The apparatus of claim 151, wherein the memory further comprises operation instructions that cause the processing module to receive the formatted overhead data and the formatted payload data by:

receiving the formatted overhead data on a first communication path; and

receiving the formatted payload data on a second communication path.

164. The apparatus of claim 163, wherein the memory further comprises operation instructions that cause the processing module to process at least one of:

synchronously receiving the formatted overhead data and the formatted payload data such that the formatted overhead data is associated with the formatted payload data; and

asynchronously receiving the formatted overhead data and the formatted payload data to the target, wherein the formatted overhead data and the formatted payload data include an identifier to associate the formatted overhead data with the formatted payload data.

165. The apparatus of claim 151, wherein the memory further comprises operation instructions that cause the processing module to receive the formatted payload data and the formatted overhead data by:

receiving the formatted payload data and the formatted overhead data in a frame.

166. The apparatus of claim 151, wherein the memory further comprises operation instructions that cause the processing module to receive the formatted payload data and the formatted overhead data by at least one of:

monitoring at least one communication path for the formatted payload data and the formatted overhead data:

receiving the formatted overhead data and the formatted payload data in an assigned time frame;

receiving the formatted overhead data and the formatted payload data at an assigned frequency; and

receiving instructions to monitor the at least one communication path from a controller.

167. An apparatus for receiving data within a network, the apparatus comprises:

processing module; and

memory operably coupled to the processing module, wherein the memory includes operational instructions that cause the processing module to:

receive a formatted data unit that includes formatted overhead data and formatted payload data;

deformat the formatted payload data utilizing the formatted overhead data based on a data formatting convention to produce retrieved payload data;

deformat the formatted overhead data using the data formatting convention to produce retrieved overhead data; and

logically combine the retrieved overhead data and the retrieved payload data to produce a retrieved data unit.

168. The apparatus of claim 167, wherein the memory further comprises operation instructions that cause the processing module to deformat the formatted overhead data by:

decoding the formatted overhead data based on at least one of: multilevel decoding, pulse position demodulation, pulse amplitude demodulation, amplitude shift dekeying, and phase shift dekeying to produce the retrieved overhead data.

169. The apparatus of claim 167, wherein the memory further comprises operation instructions that cause the processing module to deformat the formatted payload data by:

filtering the formatted data unit to produce filtered payload data; and

decoding the filtered payload data based on at least one of: multilevel decoding, block decoding, nB/mB decoding, non return to zero decoding, and Manchester decoding, where $n < m$, to produce the retrieved payload data.

170. The apparatus of claim 167, wherein the memory further comprises operation instructions that cause the processing module to deformat the formatted overhead data by:

removing idle data from the retrieved overhead data to produced overhead data.

171. The apparatus of claim 167, wherein the memory further comprises operation instructions that cause the processing module to deformat the formatted overhead data by:

identifying control data within the retrieved overhead data.

172. The apparatus of claim 167, wherein the memory further comprises operation instructions that cause the processing module to:

receive a formatted data unit that includes the formatted overhead data, formatted datagram overhead data, and formatted datagram payload data;

deformat the formatted datagram payload data utilizing the formatted overhead data based on the data formatting convention to produce retrieved datagram payload data;

deformat the formatted datagram overhead data using the data formatting convention to produce retrieved datagram overhead data; and

logically combine the retrieved overhead data, the retrieved datagram overhead data, and the retrieved datagram payload data to produce the retrieved data unit.

173. A method for transceiving data within an internetworking unit, the method comprises:

receiving data that is formatted in accordance with a protocol of a first network;

converting format of the data from the first network protocol to a local protocol;

processing the data in the local protocol to produce processed data; and

converting format of the processed data from the local protocol to a protocol of a second network.

174. The method of claim 173, wherein the converting the format of the data into the local protocol further comprises:

formatting payload data of the data using a first transmission format convention to produce formatted payload data; and

formatting overhead data of the data using a second transmission format convention to produce formatted overhead data.

175. The method of claim 174 further comprises:

transmitting the formatted payload data and formatted overhead data over separate paths within the internetworking unit.

176. The method of claim 174 further comprises:

transmitting the formatted payload data and formatted overhead data over a same path within the internetworking unit.

177. The method of claim 174, wherein the formatting of the payload data further comprises at least one of:

encoding the payload data; and

modulating the payload data.

178. The method of claim 174, wherein the formatting of the overhead data further comprises at least one of:

encoding the overhead data; and

modulating the overhead data.

179. The method of claim 174, wherein the formatting of the overhead data and the payload data further comprises:

encoding the overhead data to produce encoded overhead data; and

modulating the payload data with the encoded overhead data to produce the formatted overhead data and the formatted payload data.

180. The method of claim 174, wherein the converting the format of the processed data further comprises:

deformatting the formatted payload data using the first transmission format convention to recapture the payload data; and

deformatting the formatted overhead data using the second transmission format convention to recapture the overhead data.

181. The method of claim 174, wherein the converting the format of the processed data further comprises:

deformatting the formatted payload data using a third transmission format convention to recapture the payload data, wherein the first transmission format convention corresponds to the protocol of the first network and the third transmission format convention corresponds to the protocol of the second network; and

deformatting the formatted overhead data using a fourth transmission format convention to recapture the overhead data, wherein the second transmission format convention corresponds to the protocol of the first network and the fourth transmission format convention corresponds to the protocol of the second network.

182. The method of claim 181, wherein the deformatting the formatted overhead data further comprises:

reconstructing the overhead data in accordance with the protocol of the second network.

183. The method of claim 173, wherein the processing further comprises at least one of:

switching the data to at least one port of the internetworking unit to produce the processed data; and

modifying overhead data of the data based on routing of the data to produce the processed data.

184. An apparatus for transceiving data within an internetworking unit, the apparatus comprises:

processing module; and

memory operably coupled to the processing module, wherein the memory includes operational instructions that cause the processing module to:

receive data that is formatted in accordance with a protocol of a first network;

convert format of the data from the first network protocol to a local protocol;

process the data in the local protocol to produce processed data; and

convert format of the processed data from the local protocol to a protocol of a second network.

185. The apparatus of claim 184, wherein the memory further comprises operational instructions that cause the processing module to convert the format of the data into the local protocol by:

formatting payload data of the data using a first transmission format convention to produce formatted payload data; and

formatting overhead data of the data using a second transmission format convention to produce formatted overhead data.

186. The apparatus of claim 185, wherein the memory further comprises operational instructions that cause the processing module to:

transmit the formatted payload data and formatted overhead data over separate paths within the internetworking unit.

187. The apparatus of claim 185, wherein the memory further comprises operational instructions that cause the processing module to:

transmit the formatted payload data and formatted overhead data over a same path within the internetworking unit.

188. The apparatus of claim 185, wherein the memory further comprises operational instructions that cause the processing module to format the payload data by at least one of:

encoding the payload data; and

modulating the payload data.

189. The apparatus of claim 185, wherein the memory further comprises operational instructions that cause the processing module to format of the overhead data by at least one of:

encoding the overhead data; and

modulating the overhead data.

190. The apparatus of claim 185, wherein the memory further comprises operational instructions that cause the processing module to forma of the overhead data and the payload data by:

encoding the overhead data to produce encoded overhead data; and

modulating the payload data with the encoded overhead data to produce the formatted overhead data and the formatted payload data.

191. The apparatus of claim 188, wherein the memory further comprises operational instructions that cause the processing module to convert the format of the processed data by:

deformatting the formatted payload data using the first transmission format convention to recapture the payload data; and

deformatting the formatted overhead data using the second transmission format convention to recapture the overhead data.

192. The apparatus of claim 185, wherein the memory further comprises operational instructions that cause the processing module to convert the format of the processed data by:

deformatting the formatted payload data using a third transmission format convention to recapture the payload data, wherein the first transmission format convention corresponds to the protocol of the first network and the third transmission format convention corresponds to the protocol of the second network; and

deformatting the formatted overhead data using a fourth transmission format convention to recapture the overhead data, wherein the second transmission format convention corresponds to the protocol of the first network and the fourth transmission format convention corresponds to the protocol of the second network.

193. The apparatus of claim 192, wherein the memory further comprises operational instructions that cause the processing module to deformat the formatted overhead data by:

reconstructing the overhead data in accordance with the protocol of the second network.

194. The apparatus of claim 184, wherein the memory further comprises operational instructions that cause the processing module to process the data by at least one of:

switching the data to at least one port of the internetworking unit to produce the processed data; and

modifying overhead data of the data based on routing of the data to produce the processed data.